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A CONVERSION SYSTEM
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- (71) Applicant(s)
JOHN CHARLES WEBSTER
- (72) Inventor(s)
JOHN CHARLES WEBSTER
- (74) Attorney or Agent
CULLEN & CO, GPO Box 1074, BRISBANE QLD 4001
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- (57) Claim

1. A conversion system for converting a four door hard top motor vehicle into a convertible vehicle, the system including strengthening the chassis of the vehicle by attaching diagonally and longitudinally extending bracing members to the chassis, the bracing members consisting of two transversely spaced longitudinally extending bracing members and a plurality of pairs of transversely extending cross members secured to the longitudinal members and the transverse members of each pair being secured to each other at a location between the transverse members, the system including door sill reinforcing members located in each doorway of the vehicle secured to the door sill and extending part way up and secured to door pillars of the doorway, floor plates secured to the floor of the vehicle at least covering a floor area adjacent front seats of the vehicle and a strengthening member extending between and secured to the door pillars at a location spaced above the door sills.

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**COMPLETE SPECIFICATION
FOR A PETTY PATENT**

Name of Applicant(s): JOHN CHARLES WEBSTER

Actual Inventor(s): JOHN CHARLES WEBSTER

Address for Service: CULLEN & CO.,
Patent & Trade Mark
Attorneys,
240 Queen Street,
Brisbane, Qld. 4000,
Australia.

Invention Title: A CONVERSION SYSTEM

The following statement is a full description of this invention including the best method of performing it known to me:

THIS INVENTION relates to a conversion system for converting hard top four door motor vehicles into convertible four door motor vehicles. In particular, the invention concerns a conversion system for converting
5 hard top four door motor vehicles of the type having a monocoque chassis into a convertible four door vehicle.

A practice has developed involving the conversion of hard top two door motor vehicles into convertible or soft top vehicles having a removable roof.
10 Typically, vehicles subjected to such a conversion have been Volkswagen motor vehicles or Ford Laser vehicles. Once the hard top roof of such a vehicles is removed, the vehicle needs to be strengthened because the torsional rigidity and strength of the vehicle is reduced by the
15 removal of the rigid roof.

For converted vehicles of this two door type to pass Department of Main Roads test and to be registered for normal road use, torsional and bending tests are carried out on the vehicle. Once the roof of the vehicle
20 is removed, it becomes necessary to fit chassis bracing and a roll bar to ensure that the modified vehicle passes the tests and is able to be registered.

Two door vehicles such as the ones mentioned above are relatively easy to convert in this way. The
25 body panels rearwardly of the two front doors add rigidity to the vehicle.

It has not generally been the practice to convert four door vehicles into convertible vehicles with soft tops because the presence of rear doors rather than
30 solid panels does not allow the four door vehicle to be converted employing the techniques used for two door vehicles. Such modification alone does not result in a vehicle which would pass the tests necessary to enable the vehicle to be registered for road use.

35 It is an object of the invention to provide a conversion system for converting hard top four door motor vehicles into a convertible four door motor vehicle which overcomes the disadvantages referred to above.

According to one aspect the invention provides a conversion system for converting a four door hard top motor vehicle into a convertible vehicle, the system including strengthening the chassis of the vehicle by

5 attaching diagonal and longitudinally extending bracing members to the chassis, the bracing members consisting of two transversely spaced longitudinally extending bracing members and a plurality of pairs of transversely extending cross members secured to the longitudinal

10 members and the transverse members of each pair being secured to each other at a location between the transverse members, the system including door sill reinforcing members located in each doorway of the vehicle secured to the door sill and extending part way

15 up and secured to door pillars of the doorway, floor plates secured to the floor of the vehicle at least covering a floor area adjacent front seats of the vehicle and a strengthening member extending between and secured to the door pillars at a location spaced above the door

20 sills.

Preferably, the strengthening of the chassis includes three pairs of transversely extending cross members although two pairs may also be used.

The floor plates preferably just extend over

25 the floor area adjacent to and forward of the front seat or seats and either side of the tail shaft tunnel or centre console in the floor of the vehicle. Preferably, floor plates are also secured to and extend over the floor near the rear seat of the vehicle.

30 Preferably, a strengthening plate is secured behind the rear seat and extends from the floor of the vehicle and the full height of the seat. The rear seat strengthening plate may be welded to the floor and inner sides of the vehicle.

35 The sill reinforcing members may consist of plates having a stepped upper periphery.

A particular preferred embodiment of the invention will now be described with reference to the

drawings in which:

Figure 1 is a side view of a typical four door motor vehicle which may be converted to a convertible employing the system of the invention;

5 Figure 2 shows a plan view of chassis bracing members according to one embodiment;

Figure 3 shows a side view of the bracing members of Figure 2;

10 Figure 4 is a side view of the vehicle of Figure 1 on which the conversion system of the invention has been carried out; and

Figure 5 is a plan view of the vehicle shown in Figure 4.

15 Figure 1 is a side view of a typical four door vehicle 10 which may be converted into a convertible four door vehicle employing the system of the invention. The vehicle has two front doors 11 and two rear doors 12. Only one of each of the front and the rear doors is visible in this view. A door sill 13 extends below the
20 doors. The vehicle has a front windscreen 14, a solid roof 15 and a rear window (not visible in this view).

The chassis bracing members shown in Figure 2 include two spaced longitudinal members 20, 21. Three pairs of cross bracing members extend between members 20 and 21. A first pair of cross members 23, 24 are fixed
25 at both ends to the members 20, 21 and to each other by a connecting plate 25 welded to members 23, 24. A second pair of cross members 26, 27 are fixed at both ends to members 20, 21 and to each other by a connecting plate 28
30 which is welded to the members 26, 27.

A third pair of cross members 29, 30 has one end only of each of the members secured to respective ones of members 20, 21. The other ends of members 29, 30 are flattened as shown in Figure 3 and secured to a cross
35 member of the vehicle chassis.

Figure 4 shows the vehicle 10 after the conversion system of the invention has been employed. The doors 11, 12 shown in Figure 1 have been omitted in

the view illustrated in Figure 4. Each of the door openings has sill reinforcing plates 35, 36 secured to them. The plates 35, 36 have a stepped upper periphery as shown to allow for easier access into the vehicle while still providing the necessary additional strength. Each of the sill plates is welded to the sill 13 and extends part way up the pillar 37 and is welded to the pillar. The front plate 35 also extends part way up wall 38 of the vehicle body and is welded to it. Likewise the rear part extends part way along the guard 39 of the vehicle body and is secured to it.

An upper edge of the surround of the windscreen has a tubular reinforcing member 40 welded to it. A rail 41 is secured to extend between opposed pillars of the vehicle and is rearwardly spaced of the pillars.

The back seat of the vehicle is not shown in Figure 4. Immediately behind where the back seat would normally locate, is an inclined reinforcing plate 42 which separates the passenger area of the vehicle from the interior. The plate 42 is secured to the sides and the floor of the vehicle by welds.

Figure 5 is a plan view of the vehicle of Figures 1 and 4. In this view, the rail 41 extending between the pillars is shown and the plate 52 is clearly visible. The floor of the vehicle immediately adjacent the location of the seats is provided with floor plates 42, 43, 44 and 45. These floor plates are welded to the floor pan of the vehicle.

A four door vehicle converted employing the system of the invention is able to pass tests allowing registration for road use.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:-

1. A conversion system for converting a four door hard top motor vehicle into a convertible vehicle, the system including strengthening the chassis of the vehicle by attaching diagonally and longitudinally extending bracing members to the chassis, the bracing members consisting of two transversely spaced longitudinally extending bracing members and a plurality of pairs of transversely extending cross members secured to the longitudinal members and the transverse members of each pair being secured to each other at a location between the transverse members, the system including door sill reinforcing members located in each doorway of the vehicle secured to the door sill and extending part way up and secured to door pillars of the doorway, floor plates secured to the floor of the vehicle at least covering a floor area adjacent front seats of the vehicle and a strengthening member extending between and secured to the door pillars at a location spaced above the door sills.
2. The system of claim 1 including a strengthening plate behind a rear seat of the vehicle and extending from the floor and the full height of the rear seat and secured to the floor of the vehicle and inner sides of the vehicle.
3. The system of claim 1 or 2 wherein the sill reinforcing members consist of plates and have a stepped upper periphery.

DATED this 6th day of November 1995

JOHN CHARLES WEBSTER

By his Patent Attorneys

CULLEN & CO.

ABSTRACT

A system for converting a four door motor vehicle into a convertible vehicle. The system includes attaching longitudinally extending and transversely extending members to the chassis of the vehicle, attaching sill reinforcing members to door sills of the vehicle, securing floor strengthening plates to the floor pan of the vehicle and securing a strengthening member between door pillars at a location above the door sills.

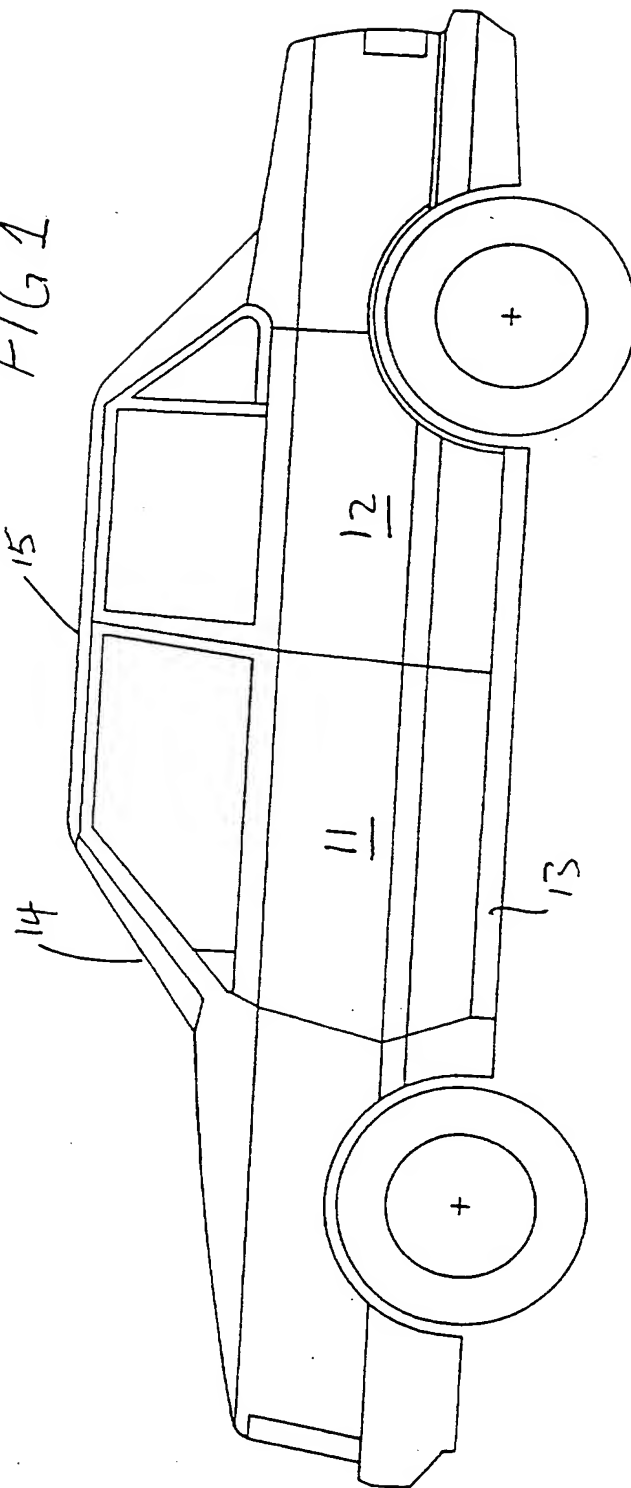
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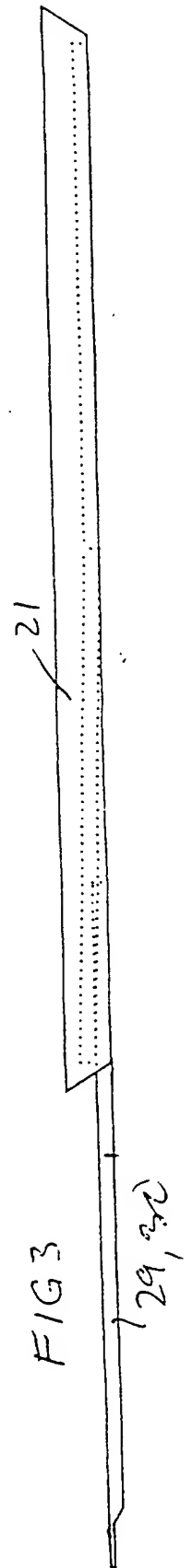
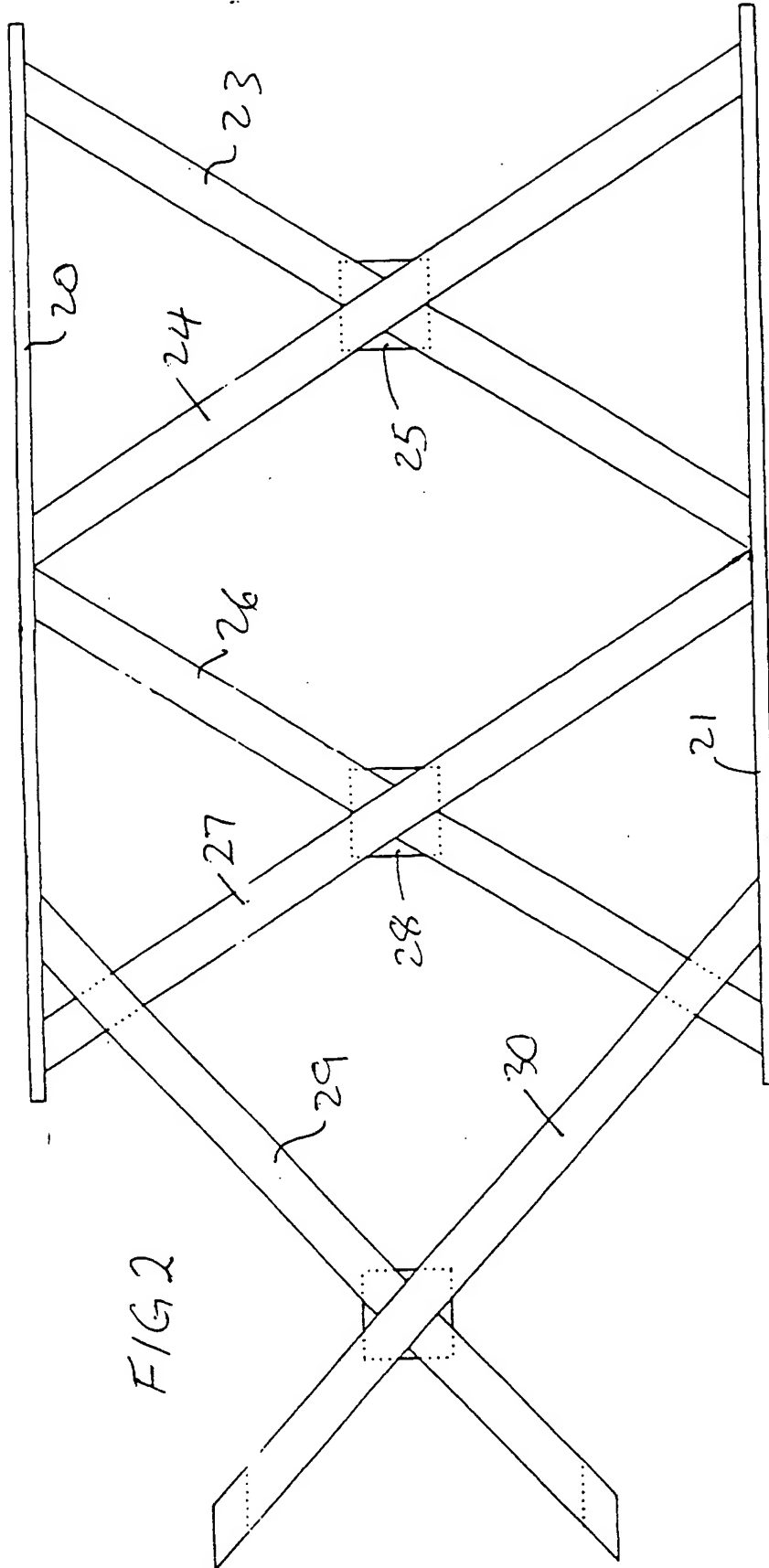
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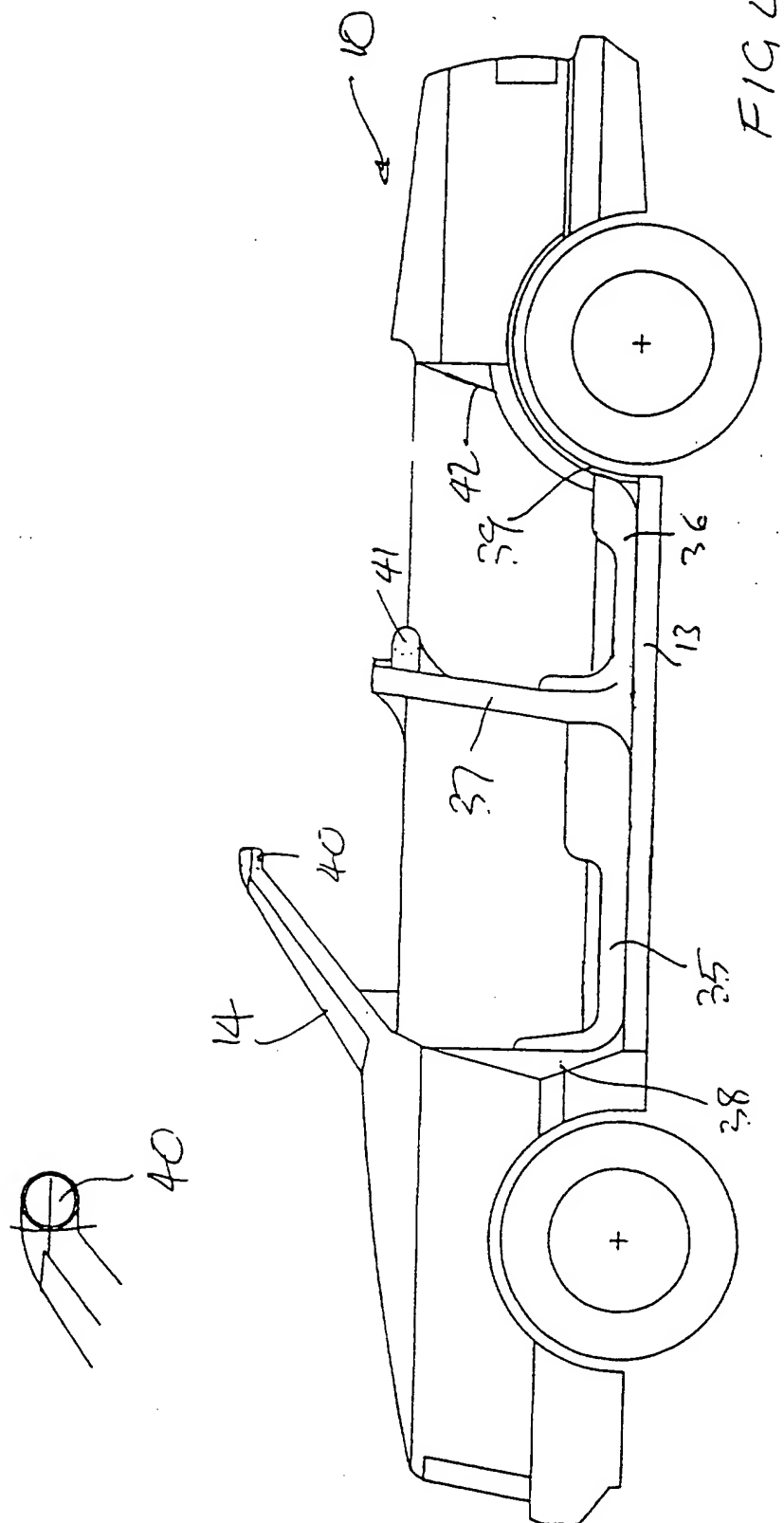
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FIG 1

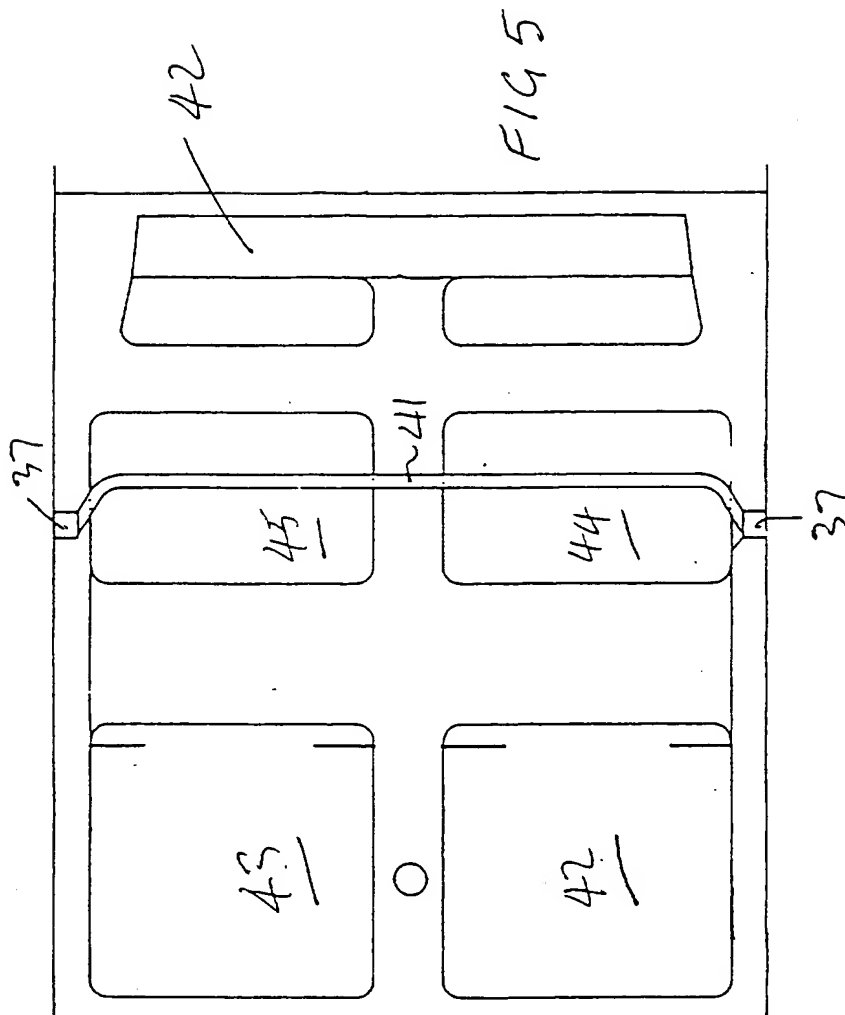


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